PERMIT CHECK LIST

The following people have reviewed the permit:

Reviewing Air Inspector: _____

Air Compliance Manager: _____

Date: January 8, 2014

Source Name: Cameron Chemicals, Inc. Registration No: 60231 Id. No.: 51-800-00002

Source Location: 830 Old Dill Road, Suffolk, Virginia

Mail Address: 830 Old Dill Road, Suffolk, Virginia 23321

Source Status: ___ Greenfield _✓_ Currently operating

Source Classification: ___Minor _✓_ SynMinor ___ State Major ___ PSD Major ___ TV Major

_Y_ **Inspector Contacted/Consulted**

Permit Action: Several revisions to the Source's 2006 SOP based on an August 29, 2013 FCE site visit inspection that resulted in a RCA.

Permit Action Program:

___ NSR _✓_ SOP ___ TV ___ Major HAP

Permit Action Type:

___ Exemption

___ Article 6 Modification _✓_ Significant Amendment/Modification

___ Minor Amendment/Modification ___Administrative Amendment ___ Renewal

___ State Major ___ PSD ___ Non-Attainment ___ General

_Y_ (Y/N) Permit Includes All Emission Units at Source.

_Y_ (Y/N) Permit Allows Source to avoid Title V/MACT/etc.

After this permit, source is: ___ Major (A) ___ Minor (B) _✓_ Synthetic minor (manganese compounds)

Permit Application Review

___ Permit application submitted, or _✓_ Letter Request

Application Received Date: October 25, 2013

Application Complete Date: November 13, 2013

Permit Deadline Date: February 10, 2014

_✓_ Document Certification Form received (e-mailed 10-29-2013)

_N_ Confidential information with sanitized copy.

N/A Copy of letter from local official for greenfield, or major modified sources

N/A Copy of letter sent to FLM if applicable.

N/A Notification of Affected State(s)

This permit supersedes permit dated: May 4, 2006

Regulatory Review

BACT Determination (check one):

___ [Control Strategy/Equipment] @ ___ % efficiency for the control of ___ meets BACT, or

_✓_ TV/SOP/BACT not applicable.

_N_ (Y/N) NSPS/MACT/NESHAPS Applicability

_N_ (Y/N) Existing Rules (9 VAC 5 Chapter 40) Applicability

Toxic Pollutants (check one):

___ Exempt, or _✓_ in compliance with 9 VAC 5-60-320, or ___ not evaluated

Regulatory Review (cont.)

Modeling (check one):

___ Attached (including background monitors), or

___ Copy of approval letter from modeling section,

_✓_ No modeling required by agency policy (< modeling significance levels, etc.)

Site Suitability:

_✓_ Site suitable from an air pollution standpoint, inspection date: August 29, 2013

_Y_ Calculation sheet(s) attached

_N_ (Y/N) (CAM) Compliance Assurance Monitoring Applicable

Permit includes: ___ Stack Testing ___ CEM ___ VEE by source

Public Participation

_Y_ (Y/N) Public Noticed. If yes, Public Notice Date: **Wednesday, January 8, 2014**

_N_ (Y/N) Public Notice Comments.

_N_ (Y/N) Public Hearing.

EPA Review

_Y_ (Y/N) EPA Review. If yes, Date proposed permit sent to EPA: **Tuesday, January 7, 2014**

_N_ (Y/N) EPA Comments.

Other Comments and Final Recommendations (attach memo or list below):

Comments: Cameron Chemicals, Inc. (Source) currently has a May 4, 2006 issued SOP to operate a fertilizer micronutrients and raw materials processing plant. The facility granulates, mixes, dries, and bags fertilizer and fertilizer raw materials, mostly originating from the mining industry and various foundries. The permitted equipment consists of a rotary drum dryer, rotary granulator, primary and secondary cyclones, wet venturi scrubber, solids recovery tank, and a cyclonic separator.

Facility Processing Operations:

A front-end loader is used to transfer raw materials that are stored on-site in different open bins with covers to a weigh hopper. The loader operator uses a formula on a display screen showing what materials are needed and the amount (weight) of each constituent in the mixture. When the batch is loaded, a series of conveyors transfer the batch to a holding hopper. The batch is then conveyed using a feed elevator to the inlet opening of the rotary granulator where water and sulfuric acid are sprayed onto the incoming materials. After the mix, now in granular form, has passed through the granulator, it drops into a heated rotary drum dryer that dries the granules to a moisture content of between 4 and 10%. The dryer exhaust passes through two (2) cyclone separators and a wet venturi scrubber system before being vented to the outside air. Particulates collected by the cyclone separators are conveyed back to the granulator and the slurry from the scrubber is pumped from a settling tank to the granulator and combined with incoming feed materials. The dry granules from the rotary dryer are elevator-conveyed to a screener where oversized granules go through a crusher (hammermill) and are then rescreened. Undersized granules are returned to the rotary granulator. Correct sized granules are conveyed to storage bins. To ensure good product quality, the operator controls granulator process rate and temperature and makes adjustments to the sulfuric acid feed rate, or burner fuel feed if needed to keep the rotary drum temperature within about 20 degrees of 160^{o}F, using the readout from digital temperature monitor.

Regulatory Review (cont.)

At the shipping mill area, located inside the facility at the north end of the building, a rotary granule coating drum is fed by a covered conveyor from a feed hopper where fertilizer product is loaded using a front-end loader. The granules are spray coated in the rotating drum with a liquid film that is pumped from an adjacent storage tank. The liquid coating material (Dustrol 3275) is a highly refined glycerin based product that acts as a dust suppressant by coating the fertilizer with a thin sticky film which binds fugitive dust to the fertilizer granules and also helps to stabilize the fertilizer during bulk shipments. The film coated granules are then fed by way of another covered belt conveyor from the granule coating drum discharge outlet to a loading area located outside of and parallel to the north wall of the building where the coated fertilizer product is loaded into either trucks or a tote feed hopper used to fill supersacks (refer to attached Figure 2.12-4 diagram for a similar layout of a dust suppressant application system). Based on the processing layout of the shipping mill described above, fugitive dust emissions from any of the fertilizer material transfer points occurring **after** the granules have been coated would be controlled by the applied dust suppressant coating, leaving only the transfer points for the loading of fertilizer product into the feed hopper, to the covered transfer conveyor, and the feed intake of the rotary granule coating drum as emission sources. The Source has pointed out that the facility has the capability to coat the granules during the production stage of a fertilizer product, however, over time as the product sits in a storage bin the coating product becomes less effective in its ability to act as a dust suppressant agent. As such, a fertilizer product can be recoated if necessary, at the shipping mill. If a fertilizer product requires recoating, it is first screened before applying the coating so that the screens do not become blinded. A baghouse is used to control emissions from the screener and elevator and is only needed when the initial coating applied at production is no longer effective. The baghouse vents to the inside of the building.

To estimate the PTE particulate emissions from the shipping mill processing operations, the following calculations were performed:

An uncontrolled particulate emission factor of 0.2 lbs/ton of fertilizer product was used for processing operations at the shipping mill. This emission factor was obtained from Table 2.12-1, *Fugitive Dust Emission Factors For Fertilizer Mixing/Blending Plants* (*epa.ohio.gov/Portals/27/engineer/racm/RACM3.pdf*) for loading operations (see attached page).
There would be three (3) fertilizer material transfer locations where emissions could be emitted: to the feed hopper, to the covered transfer conveyor, and to the feed intake of the rotary granule coating drum.
The processing capacity of the shipping mill is rated at 10 tons/hr by the Source.

Uncontrolled PTE PM/PM-10 = (10 tons/hr) x (8,760 hrs/yr) x (0.2 lbs/ton fertilizer product) x (1 ton/2,000 lbs) = **8.76 tons PM/PM-10/yr** from the shipping mill processing operations.

As such, processing operations at the shipping mill are exempt from permitting and do not need to be included in the SOP. Furthermore, all emissions resulting from the shipping mill processing operations are located within the confines of the facility's building and normally would not require permitting based solely on this fact.

Permit Action:

The Source received an RCA based on a FCE inspection site visit that took place on August 29, 2013. In the RCA, the Source was asked to provide corrective actions involving the product cooler PC-1 and associated internally (inside building) vented baghouse listed in the May 4, 2006 SOP that was no longer being used by the Source. In the current May 4, 2006 SOP, the baghouse associated with the product cooler PC-1 is also used to control particulate emissions from the rotary granulator feed inlet. The Source responded to the RCA with a proposal for revisions to the SOP, which included the following items:

Regulatory Review (cont.)

1. The product cooler PC-1 and associated baghouse is to be removed from the SOP as they are no longer used in the fertilizer production process at the facility;

2. According to the Source, the baghouse associated with the product cooler PC-1 was never used to control particulate emissions from the weigh hopper, holding hopper, feed elevator, conveyors, or granulator feed inlet. The SOP should be revised to indicate emission control for the transfer points to and from these pieces of equipment is wet suppression with a control efficiency of 50%, involving the addition of water to the raw materials to increase moisture content whereby controlling airborne particulates at these locations;

3. The 2006 SOP Emission Controls Condition # 4 requires revision to remove the wording, "Particulate emissions from the granulator (G-1) raw material inlet and the box cooler (PC-1) shall be controlled by a fabric filter" and be replaced with wording to reflect the use of wet suppression involving the addition of water to the raw materials to increase moisture content;

4. The 2006 SOP Monitoring Device Condition # 6 requires revision to remove the wording, "The Fabric Filter shall be equipped with a device to measure the differential pressure drop across the fabric filter" as the baghouse is not the emissions control device used;

5. The 2006 SOP Monitoring Device Observation Condition # 7 requires revision to remove the references to the baghouse; and

6. The 2006 SOP On Site Records Condition # 17 needs to include the requirement that visible emissions occurring in the facility building for periods longer than one (1) hour be documented in a record log and reported as a malfunction to DEQ.

In addition to these revisions, a Visible Emissions Condition was re-instated in the 2013 amended SOP limiting visible emissions from the wet venturi scrubber exhaust stack to no more than five percent (5%) opacity. This limit was absent from the May 4, 2006 SOP and November 26, 2002 NSR permit, however was present in the other permits prior to the 2002 NSR. The permit writer researched ECM records for any documented reasoning for the visible emission limit absence but could find none. The most likely reasoning for the absence of visible emissions limits on the scrubber exhaust stack was due to the fact that NG was the only fuel burned in the rotary drum dryer burner between the years 2002 and 2006. As such, visible emissions limits were not required as NG is a clean burning fuel and usually exhibits no visible emissions. However, as part of the 2006 SOP, the Source requested that distillate oil be permitted as an approved alternate fuel for use in the rotary drum dryer and the five percent (5%) opacity limit should have been placed back in the SOP, but was not. The DEQ Air Compliance inspector for the facility also requested that visible emissions from the feed inlet of the granulator be restricted to this same five percent opacity (5%) limit and as such, was included in the visible emission limit condition in the SOP.

Another requested change to the SOP suggested by the DEQ Air Compliance inspector involved an increase in the NG fuel throughput from 20 to 40 million cubic feet of natural gas per year as it was noted by the inspector that the facility had approached the NG fuel throughput limit on several occasions. The rotary drum dryer emissions were recalculated based on the increased NG fuel throughput (distillate fuel oil remained unchanged) and the facility wide emissions were adjusted accordingly. Only the PM, NOx, and CO annual emissions from the dryer changed as these are the primary pollutants resulting from the use of NG fuel. Hourly emissions remained unchanged as neither the maximum rated heat input to the dryer nor the fuel types changed (see attached emissions spreadsheets).

Regulatory Review (cont.)

A new permit Condition 17 was included in the amended SOP to account for particulate matter emissions from the conveyors used in the fertilizer micronutrients and raw materials processing plant and were also added to the facility wide emissions for the facility operations.

The fact that there will be annual increases in PM, PM-10, NOx, and CO emissions as a result of the increased NG fuel throughput and due to the inclusion of conveyor emissions in the SOP, this permit action will be processed as a significant amendment to the May 4, 2006 SOP and a 30-day public comment period will be required.

Final Recommendation: Recommend Approval.

Environmental Engineer's Signature: _____

Air Permit Manager's Signature: _____